

# Form Decks - Type 1.5FD

ASD

PROPERTIES

SECTION PROPERTIES

DESIGN STRENGTHS (No Concrete Fill)

Gage	F <sub>y</sub> (ksi)	Coverage (in.)	Thickness (in.)	Weight (psf)	I <sub>p</sub> (in. <sup>4</sup> /ft.)	I <sub>n</sub> (in. <sup>4</sup> /ft.)	S <sub>p</sub> (in. <sup>3</sup> /ft.)	S <sub>n</sub> (in. <sup>3</sup> /ft.)	Mn,p/Ω (in.-lb./ft.)	Mn,n/Ω (in.-lb./ft.)	Vn/Ω (lb./ft.)	*Rbe/Ω (lb./ft.)	*Rbi/Ω (lb./ft.)
22	33	36	0.0295	1.63	0.175	0.162	0.189	0.184	3734	3627	1738	539	974
20	33	36	0.0358	1.98	0.213	0.205	0.238	0.227	4712	4485	2100	769	1399
18	33	36	0.0474	2.62	0.281	0.281	0.315	0.307	6233	6074	2761	1285	2358
16	33	36	0.0598	3.30	0.355	0.355	0.395	0.393	7800	7758	3456	1964	3627

CONSTRUCTION SPANS

Total Slab Depth (in.)	Gage	Concrete Weight (psf)	Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)	Maximum Construction Clear Span (ft. - in.)			Concrete Volume ft. <sup>3</sup> /ft. <sup>2</sup>
			Single	Double	Triple		Single	Double	Triple	
3 1/2	22	36	4 - 6	5 - 11	5 - 11	27	4 - 10	6 - 4	6 - 5	0.250
	20	36	5 - 3	6 - 11	7 - 0		5 - 8	7 - 6	7 - 7	
	18	36	6 - 3	8 - 3	8 - 5		6 - 10	8 - 9	9 - 0	
	16	36	7 - 2	9 - 3	9 - 7		7 - 11	9 - 10	10 - 2	
4	22	42	4 - 3	5 - 8	5 - 8	32	4 - 8	6 - 1	6 - 2	0.291
	20	42	5 - 0	6 - 7	6 - 8		5 - 5	7 - 2	7 - 3	
	18	42	5 - 11	7 - 10	8 - 0		6 - 6	8 - 7	8 - 9	
	16	42	6 - 10	8 - 10	9 - 2		7 - 6	9 - 8	10 - 0	
4 1/2	22	48	4 - 1	5 - 5	5 - 6	37	4 - 5	5 - 10	5 - 11	0.333
	20	48	4 - 9	6 - 4	6 - 5		5 - 2	6 - 11	6 - 11	
	18	48	5 - 8	7 - 6	7 - 8		6 - 3	8 - 3	8 - 4	
	16	48	6 - 6	8 - 6	8 - 9		7 - 2	9 - 3	9 - 7	
5	22	54	3 - 11	5 - 3	5 - 3	41	4 - 3	5 - 8	5 - 9	0.375
	20	54	4 - 7	6 - 1	6 - 2		5 - 0	6 - 8	6 - 9	
	18	54	5 - 5	7 - 3	7 - 4		6 - 0	7 - 11	8 - 1	
	16	54	6 - 3	8 - 1	8 - 5		6 - 11	8 - 11	9 - 3	
5 1/2	22	60	3 - 9	5 - 0	5 - 1	46	4 - 2	5 - 6	5 - 7	0.416
	20	60	4 - 5	5 - 10	5 - 11		4 - 10	6 - 5	6 - 6	
	18	60	5 - 3	6 - 11	7 - 1		5 - 9	7 - 8	7 - 9	
	16	60	6 - 0	7 - 10	8 - 1		6 - 7	8 - 7	8 - 11	
6	22	66	3 - 8	4 - 11	4 - 11	50	4 - 0	5 - 4	5 - 5	0.458
	20	66	4 - 3	5 - 8	5 - 9		4 - 8	6 - 3	6 - 4	
	18	66	5 - 1	6 - 8	6 - 10		5 - 7	7 - 5	7 - 7	
	16	66	5 - 10	7 - 7	7 - 10		6 - 5	8 - 4	8 - 8	

- Notes:
- Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.
  - Web crippling design strengths and maximum construction spans are based on 1.5" for end bearing and 3" for interior bearing. Check web crippling if minimums are not met.
  - Maximum construction spans are based on ANSI/SDI NC-2010 Standard for Non-Composite Steel Floor Deck and the following construction loading:
    - Deck self-weight and concrete weight plus worst-case of either a 150 lb. concentrated load or a 20 psf uniform load; or
    - Deck self-weight plus a 50 psf uniform construction load, whichever controls.
  - Concrete weights do not include weight of deck.
  - Deck profile has been accounted for in determining concrete volumes. Deck and support deflections have not been included in concrete volumes or weights.

SLAB DESIGN - ALLOWABLE SUPERIMPOSED UNIFORM LOADS

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A <sub>s</sub> (in. <sup>2</sup> /ft.)	Allowable Superimposed Uniform Load (psf)											
			Clear Span (ft. - in.)											
			3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	
3 1/2	6x6 - W4.0xW4.0	0.080	380	324	279	243	214	169	137	113	95	81	70	
	4x4 - W2.9xW2.9	0.087	400	355	306	267	234	185	150	124	104	89	77	
	4x4 - W4.0xW4.0	0.120	400	400	371	323	284	225	182	150	126	108	93	
4	6x6 - W4.0xW4.0	0.080	400	400	398	347	305	241	195	161	136	116	100	
	4x4 - W2.9xW2.9	0.087	400	400	400	370	325	257	208	172	145	123	106	
	4x4 - W4.0xW4.0	0.120	400	400	400	400	376	297	240	199	167	142	123	
4 1/2	4x4 - W2.9xW2.9	0.087	400	400	400	400	400	349	283	234	196	167	144	
	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	383	310	257	216	184	158	
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	371	307	258	220	189	
5	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	336	282	241	208	
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	392	330	281	242	
	#4 @ 12" o.c.	0.196	400	400	400	400	400	400	400	400	376	320	276	
5 1/2	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	357	305	263	
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	400	400	353	305	
	#4 @ 12" o.c.	0.196	400	400	400	400	400	400	400	400	400	386	332	
6	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	400	400	375	324
	#4 @ 18" o.c.	0.131	400	400	400	400	400	400	400	400	400	400	400	345
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	400	400	400	400	373

- Notes:
- Allowable Superimposed Uniform Loads shown are for end spans and are based on the following criteria:
    - Unfactored service level loads, determined using ACI design method and uniform load factor of 1.6. Loads shown in table are for end spans.
    - Reinforcement placed at middle of  $l_c$  for  $h \leq 3'$ . For  $h > 3'$ , mesh is draped over supports or bars are placed for positive and negative bending, where positive steel rests on deck and negative steel cover = 3/4".
    - Galvanized deck. If non-galvanized deck or temporary shoring is used, the weight of the slab must be deducted from the uniform loads.
    - Three span conditions and ACI moment coefficients.
    - Slab deflection is limited to a minimum of Clear Span/360 or 1" under service level superimposed loading.
  - (A<sub>s</sub>) does not meet ACI minimum steel requirements for reinforcement (0.0018A<sub>c</sub>).

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## ALLOWABLE CONSTRUCTION UNIFORM LOADS

Gage	Span Condition	Loading Condition	Uniform Load (psf)												
			Clear Span (ft. - in.)												
			4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0
22	Single	Total Load	156	123	100	82	69	59	51	44	39	34	31	28	25
		Deflection L/180	239	168	123	92	71	56	45	36	30	25	21	18	15
		Deflection L/240	180	126	92	69	53	42	34	27	22	19	16	13	11
		W1*	54	38	27	19	13	9	6	3	1				
	Double	Total Load	148	117	95	79	66	57	49	43	38	33	30	27	24
		Deflection L/180	554	389	284	213	164	129	103	84	69	58	49	41	35
		Deflection L/240	416	292	213	160	123	97	78	63	52	43	37	31	27
		W1*	119	88	65	48	36	27	20	14	10	7	4	2	
	Triple	Total Load	158	125	102	84	71	61	52	46	40	36	32	29	26
		Deflection L/180	434	305	222	167	129	101	81	66	54	45	38	32	28
		Deflection L/240	325	229	167	125	96	76	61	49	41	34	29	24	21
		W1*	125	91	67	50	37	28	21	15	11	7	5	2	
20	Single	Total Load	196	155	126	104	87	74	64	56	49	43	39	35	31
		Deflection L/180	291	204	149	112	86	68	54	44	36	30	26	22	19
		Deflection L/240	218	153	112	84	65	51	41	33	27	23	19	16	14
		W1*	91	60	44	33	25	19	15	11	8	6	4	3	2
	Double	Total Load	182	145	118	98	82	70	61	53	46	41	37	33	30
		Deflection L/180	688	483	352	265	204	160	128	104	86	72	60	51	44
		Deflection L/240	516	363	264	199	153	120	96	78	65	54	45	39	33
		W1*	154	119	95	77	60	47	37	30	23	19	15	11	9
	Triple	Total Load	195	155	126	104	88	75	65	56	50	44	39	35	32
		Deflection L/180	539	378	276	207	160	126	101	82	67	56	47	40	34
		Deflection L/240	404	284	207	155	120	94	75	61	51	42	35	30	26
		W1*	162	126	100	79	62	49	39	31	24	19	15	12	9
18	Single	Total Load	260	205	166	137	115	98	85	74	65	58	51	46	42
		Deflection L/180	385	270	197	148	114	90	72	58	48	40	34	29	25
		Deflection L/240	289	203	148	111	86	67	54	44	36	30	25	22	18
		W1*	155	108	76	56	44	36	29	23	19	16	13	11	9
	Double	Total Load	247	196	159	132	111	95	82	71	63	56	50	45	40
		Deflection L/180	926	650	474	356	274	216	173	141	116	97	81	69	59
		Deflection L/240	695	488	356	267	206	162	130	105	87	72	61	52	44
		W1*	218	170	137	111	91	75	62	51	43	36	30	25	20
	Triple	Total Load	263	209	170	141	119	102	88	76	67	60	53	48	43
		Deflection L/180	725	509	371	279	215	169	135	110	91	76	64	54	46
		Deflection L/240	544	382	278	209	161	127	101	82	68	57	48	41	35
		W1*	231	180	144	118	97	81	66	55	46	38	32	27	23
16	Single	Total Load	325	257	208	172	144	123	106	92	81	72	64	58	52
		Deflection L/180	485	341	248	187	144	113	91	74	61	51	43	36	31
		Deflection L/240	364	256	186	140	108	85	68	55	45	38	32	27	23
		W1*	220	160	118	87	64	52	43	36	30	26	22	18	16
	Double	Total Load	315	250	203	169	142	121	105	91	80	71	64	57	51
		Deflection L/180	1168	820	598	449	346	272	218	177	146	122	103	87	75
		Deflection L/240	876	615	448	337	260	204	163	133	109	91	77	65	56
		W1*	286	225	181	148	122	101	85	71	60	51	44	37	31
	Triple	Total Load	336	267	217	180	152	130	112	98	86	76	68	61	55
		Deflection L/180	914	642	468	352	271	213	171	139	114	95	80	68	58
		Deflection L/240	685	481	351	264	203	160	128	104	86	71	60	51	44
		W1*	303	238	191	157	130	110	92	78	66	56	48	41	35

This table can be used in cases where the desired slab depth exceeds those published in the tables on the preceding page. The W1 value is critical where the deck is being used as a conventional concrete form subjected to SDI minimum construction loads and serviceability criteria. The allowable weight of concrete and deck (W1) has been backed out of the minimum SDI construction loads and serviceability criteria.

### Loading Condition Notes:

- \* Total Load = Maximum allowable total combined uniform design load (psf).
- \* Deflection L/180 = Uniform load (psf) resulting in a deflection of clear span/180.
- \* Deflection L/240 = Uniform load (psf) resulting in a deflection of clear span/240.
- \* W1 = Maximum permissible weight of concrete and deck (psf) when combined with the SDI specified design construction loads.